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## THE OPERATIONAL ScanSAR PROCESSOR AT ASF

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The Canadian Radarsat satellite, successfully launched on November 4, 1995, carries aboard the first ever operational spaceborne synthetic aperture radar (SAR) that is capable of routinely collecting wide-swath images through the use of a novel scanning beam approach known as ScanSAR. For Radar sat, ScanSAR imaging modes allow image swaths from 200 km to 500 km be achieved in a single data collection pass.

The Alaska SAR Facility (ASF) at the University of Alaska, Fairbanks (UAF) will be one of few data acquisition, processing, and distribution centers around the world capable of handling the ScanSAR mode data from Radarsat. The Jet Propulsion Laboratory (JPL) is under contract with NASA to furnish the Radarsat ScanSAR data processing capability to ASF. Under this task, a ScanSAR processing system is being designed, implemented, and integrated into the ASF SAR Processing System (SPS). This ScanSAR processing system, comprised of a number of ScanSAR Processors (SSP), will be capable of processing at least 34 minutes of Radarsat ScanSAR mode data in each 11-hour day.

This paper describes the design and implementation of the operational ScanSAR processors. Included in the discussion are processing requirements, algorithm design, hardware selection, and code implementation. Special emphasis will be placed on aspects of parallel computing technique utilized to exploit the selected algorithm and hardware to optimize throughput. Actual performance results will also be given based on testing performed using simulated as well as real Radarsat ScanSAR data.